

179128
September 15, 1965

WASTE TREATMENT REPORT

The following is the data obtained on the water flow, BOD and solids losses from the mill for the period of July 9, 1965 to September 15, 1965. The figures are reported in three parts to cover changes made in the operation of the pilot plant.

	<u>7/9-19/65</u>	<u>7/20-8/15</u>	<u>8/16-9/15</u>	<u>Ave.</u>
Primary Water Flow	1,397,000 G.	1,325,000 G.	1,450,000 G.	1,391,000
Secondary Water Flow	129,000	83,500	89,000	
T.S.S. Primary Influent	12,425 #	13,850 #	12,400 #	12,692
T.S.S. Primary Effluent	1,645	2,460	2,180	2,095
T.S.S. Secondary Influent	138	146	126	
T.S.S. Secondary Effluent	83	136	94	
BOD Primary Influent	2,556 #	3,407 #	3,520 #	3,161
BOD Primary Effluent	1,491	2,321	2,870	2,277
BOD Secondary Influent	122.6	172.0	248.0	
BOD Secondary Effluent	40.7	20.7	16.4	
% BPF. Secondary	67	88	93	
Lbs. Ammonia	375	187.5	37.1	
Lbs. Phos. Acid	49	24.5	7.8	

The 129,000 Gal. flow exhausted the oxygen supply in the aeration pit too rapidly so the volume was cut. We were given an erroneous nitrogen phosphorous BOD ratio. The reduced amount of nutrients did not hurt the efficiency of the system.

An average of a weeks tests on the sewers going to the river are listed below.

	<u>#2 Sewer</u>	<u>Boiler House Sewer</u>
Water Flow	1,115,000	525,000
BOD Lbs.	2,300	440
T.S.S. Lbs	8,436	2,873

The chief negative factors are the high influent solids to the primary tank and untreated water loss, both in fiber and BOD through the #2 and Boiler House Sewer.

In regard to the high influent solids to the settling tank, it is felt that this is due in great part to the increase of losses through the Savealls. For instance, the total suspended solid content of the clear water discharge was .83 lbs per thousand gallons on #4 and approx. .90 lbs. per thousand gallons on #3 a year, ^{as} against 1.64 and 13.3 respectively at present. It is difficult to estimate the effect of the correction of this condition but it should result in a solids to the clarifier of 5300 per day and an effluent of 550 per day. The BOD should be about 1960 lbs. going in and 1360 coming out.

As stated in a previous report, the treatment system does an adequate job on the waste brought to it, but the untreated loss through the other sewers is excessive due to losses from the water through the old storm sewer and through the boiler house sewer from the Materials Preparation Department. We also discharge the new #2 Saveall to the river.

We understand that it is proposed to divert the fresh water now discharging from the coater hot water tank from the coater sewer to the fresh water sump in the coater section. The coater losses will go into the old storm sewer as usual but this will be diverted into the white

water sewer controlled by the diversion valve in the #3 system. It is also proposed to move the #2 Saveall discharge to this line. The materials preparation losses are to be sumped and possibly be discharged into the coater sewer. In regard to this, it is suggested we consider sumping the boiler blowdown and running it into the storm sewer line instead.

If these steps are successful, this will bring up to 2,740 lbs. more BOD and 11,209 of suspended solids into the primary clarifier. This should result in about 3300 lbs. BOD and 3,595 lbs. of solid from the tank.

The secondary system can be expanded by the use of a mechanical aerator to treat 300,000 gallons of primary discharge. This, based on present discharge concentrations, would be 832 lbs. treated and 663 lbs. removed figuring 80% efficiency. This would leave ²¹²⁴~~2065~~ BOD going to the sewer, which is too much, as the amount stipulated is 2,260 lbs. of BOD.

Handwritten: The amount of BOD going to the sewer is too high.

J. A. Dean

#2 MACHINE

LOCATION:

#3 MACHINE

- 1 Reel Drum Cooling
- 2 Calender air Cooling
- 3 Duster Roll Cooling
- 4 Size Press Floor Drain
- 5 Compressor Cooling
- 6 Condenser Cooling
- 7 Condensate Pump Cooling
- 8 Oil System Pump Cooling
- 9 Suction Seal Water
- 10- Go to Clear Water Sewer--River
- 10 Pross Pit
- 11 Suction Seal
- 12 Floor Drain
- 10-12 To Settling Tank or River

#4 SIDE-CLEAN WATER SEWER

1 Cleaner Roll Cooling
2 Compressor Cooling
3 Suction Seal (Fibrous)
1-3 Joined with #3 Fresh Water And Most Goes
into #4 Tank Sewer

#4 SIDE-TANK SEVEN

- 1 Condenser Cooling
- 2 Size Press Floor Drain
- 3 Turbine Cooling
- 4 Condenser Cooling From Power Plant
- 5 White Water From Saveall
- 6 Suction Seal

FOR CENSUS USE ONLY		Identification number	Industry	State	River Basin	Page C
ITEM 1 WATER INTAKE BY KIND AND SOURCE: 1964	FRESH WATER FROM — —				Millions of gallons for the year	X
	A. Public water system (municipally or privately owned)				14.4	1
	B. Company surface water system, such as streams or lakes				----	1
	C. Company ground water system such as wells or deep springs				986.4	1
	D. <u>Total fresh water intake (Sum of A, B, and C)</u>				1000.8	1
	BRACKISH (SALT) WATER FROM — —					
	E. Ocean, ponds, wells, etc. (Brackish water is defined as all water with more than 1,000 parts per million of dissolved solids)				----	1
F. <u>TOTAL WATER INTAKE (Sum of D and E)</u>				1000.8	1	
ITEM 2 PURPOSE OF WATER INTAKE: 1964	A. Process (all water that comes directly in contact with products and/or materials)				320.9	2
	B. Cooling and condensing for steam electric power generation				280.8	2
	C. Other cooling and condensing (including air-conditioning)				330.3	2
	D. Boiler feed, sanitary service, and other uses				68.8	2
	E. <u>TOTAL INTAKE (The sum of A, B, C, and D should equal item 1F)</u>				1000.8	2
ITEM 3 WATER RECIRCULATION AND REUSE: 1964	A. Was any water recirculated or reused? 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No					
	B. If "Yes," report estimated total quantity of water which would have been required if no water was recirculated or reused (millions of gallons for the year)					1641.8
	C. Check each purpose for which water was recirculated or reused:					
		1	X	3. Other cooling and condensing (including air-conditioning)		1
		2	1	4. Boiler feed, sanitary service, and other uses		X
ITEM 4 WATER DISCHARGED: 1964	Report water discharged, whether treated or not. Exclude water evaporated or otherwise consumed and not brought to ultimate discharge point.					
	Point of discharge	Key	Millions of gallons for the year	Water treated prior to discharge (Check applicable box)		
				None	Some	All
	A. Public utility sewer (publicly or privately owned)	3-1		2	3	4
	B. Surface water body (stream, lake, ocean, etc.)	3-2	976.9	2	3	X
	C. Ground (wells, spray, etc.)	3-3		2	3	4
	D. Transferred to other users (after use in your establishment)	3-4		2	3	4
E. <u>TOTAL WATER DISCHARGED (Sum of A, B, C, and D)</u>		3-6	976.9			
ITEM 5 WATER TREATED (Include simple as well as complex treatment): 1964	A. Intake water (included in item 1) treated prior to use except by chlorination only:					
	1. AMOUNT TREATED (millions of gallons for the year)					31.0
	2. Check methods of treatment:					
	<input type="checkbox"/> 501 Aeration		<input checked="" type="checkbox"/> 504 Softening		Other (Specify):	
	<input type="checkbox"/> 502 Coagulation		<input type="checkbox"/> 505 Ion exchange		<input type="checkbox"/> 507	
<input type="checkbox"/> 503 Filtration		<input checked="" type="checkbox"/> 506 Corrosion control		<input type="checkbox"/> 507		
B. Was it necessary to treat water reported in item 3 prior to recirculation or reuse?						4.
1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No						
3. If "Yes," check methods of treatment:						
<input type="checkbox"/> 511 Aeration		<input checked="" type="checkbox"/> 514 Softening		Other (Specify):		
<input type="checkbox"/> 512 Coagulation		<input type="checkbox"/> 515 Ion exchange		<input type="checkbox"/> 517		
<input type="checkbox"/> 513 Filtration		<input checked="" type="checkbox"/> 516 Corrosion control		<input type="checkbox"/> 517		
C. Water (included in item 4E) treated prior to discharge (including chlorination):						

		Total fresh water intake		1000.8		1-4	
		D. Sum of A, B, and C					
		BRACKISH (SALT) WATER FROM					
		E. Ocean, ponds, wells, etc. (Brackish water is defined as all water with more than 1,000 parts per million of dissolved solids)				1-5	
		TOTAL WATER INTAKE (Sum of D and E)		1000.8		1-6	
12	POSE WATER USE:	A. Process (all water that comes directly in contact with products and/or materials)		320.9		2-1	
		B. Cooling and condensing for steam electric power generation		280.8		2-2	
		C. Other cooling and condensing (including air-conditioning)		330.3		2-3	
		D. Boiler feed, sanitary service, and other uses		68.8		2-4	
		TOTAL INTAKE (The sum of A, B, C, and D should equal item 1F)		1000.8		2-6	
13	RECIRCULATED AND REUSE:	A. Was any water recirculated or reused? 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No					
		B. If "Yes," report estimated total quantity of water which would have been required if no water was recirculated or reused (millions of gallons for the year)		1641.8		2-7	
		C. Check each purpose for which water was recirculated or reused:					
		1. Process <input checked="" type="checkbox"/>		3. Other cooling and condensing (including air-conditioning) <input type="checkbox"/>			
		2. Condensing water for steam electric power generation <input type="checkbox"/>		4. Boiler feed, sanitary service, and other uses <input checked="" type="checkbox"/>			
14	REPORTED:	Report water discharged, whether treated or not. Exclude water evaporated or otherwise consumed and not brought to ultimate discharge point.					
		Point of discharge	Key	Millions of gallons for the year	Water treated prior to discharge (Check applicable box)		
					None	Some	All
		A. Public utility sewer (publicly or privately owned)	2-1		2	3	4
		B. Surface water body (stream, lake, ocean, etc.)	2-2	976.9	2	3 <input checked="" type="checkbox"/>	4
		C. Ground (wells, spray, etc.)	2-3		2	3	4
		D. Transferred to other users (after use in your establishment)	2-4*		2	3	4
TOTAL WATER DISCHARGED (Sum of A, B, C, and D)		2-6	976.9				
15	TREATED (Include as complex):	A. Intake water (included in item 1) treated prior to use except by chlorination only:					
		1. AMOUNT TREATED (millions of gallons for the year)		31.0		4-1	
		2. Check methods of treatment:				4-2	
		<input type="checkbox"/> 501 Aeration <input checked="" type="checkbox"/> 504 Softening Other (Specify): <input type="checkbox"/> 502 Coagulation <input type="checkbox"/> 505 Ion exchange <input type="checkbox"/> 507 _____ <input type="checkbox"/> 503 Filtration <input checked="" type="checkbox"/> 506 Corrosion control <input type="checkbox"/> 507 _____					
		B. Was it necessary to treat water reported in item 3 prior to recirculation or reuse?					
		1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No				4-3	
		3. If "Yes," check methods of treatment:					
		<input type="checkbox"/> 511 Aeration <input type="checkbox"/> 514 Softening Other (Specify): <input type="checkbox"/> 512 Coagulation <input type="checkbox"/> 515 Ion exchange <input type="checkbox"/> 517 _____ <input type="checkbox"/> 513 Filtration <input checked="" type="checkbox"/> 516 Corrosion control <input type="checkbox"/> 517 _____		Item 3 C-11			
		C. Water (included in item 4E) treated prior to discharge (including chlorination):					
		1. AMOUNT TREATED (millions of gallons for the year)		456.0		4-4	
		2. Check methods of treatment:				4-5	
		<input type="checkbox"/> 521 Coagulation <input type="checkbox"/> 524 Trickling filters <input checked="" type="checkbox"/> 527 Ponds or lagoons <input checked="" type="checkbox"/> 522 Primary settling <input type="checkbox"/> 525 Activated sludge Other (Specify): <input type="checkbox"/> 523 Secondary settling <input type="checkbox"/> 526 Digestion <input type="checkbox"/> 528 _____					

FOR CENSUS USE ONLY	Key	0	3A	3C1	3C2	3C3	3C4	Key	4A	4B	4C	4D	5B1/5B2
	4-6							4-7					

NOTE — Response to this inquiry is required by law (Title 13 U.S. Code). By the same law, your report to the Census Bureau is confidential. It may be used only by census Bureau employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

(Please correct if name or address has been changed)

INDUSTRIAL WATER USE IN 1964

897085 0025 4 26211 340031707
HAMILTON PAPER CO
MICHIGAN DIVISION
111 HELL ST
PLAINWELL 000 41CH

Please complete and return this form to the Bureau of the Census, Washington, D.C., 20233, not later than 30 days after you receive it. A return envelope is enclosed. Retain one copy of the form for your files.

YOUR FILE COPY

INSTRUCTIONS

General — Report all quantities in millions of gallons for the year. Do not report in gallons per minute or gallons per day. If the quantity is 5,600,000 gallons for the year, report as 5.6; if it is 600,000 gallons for the year, report as 0.6; if it is 80,000 gallons for the year, report as 0.08. If no water is used, treated, or discharged, report "None." Reasonably accurate estimates are acceptable.

ITEM 1 — Water intake by kind and source.

A. Include fresh water supplied by a water system (whether publicly or privately owned) whose primary purpose is the supply of water to the general public. Include also fresh water supplied by systems whose principal function is the supply of water to industrial users.

B and C. Include fresh water obtained from your own water supply system and fresh water obtained from another company where the supplying company is not primarily a water supplier to the general public and/or industrial users. Include only your own portion of fresh water obtained from a joint water supply system operated by your company.

E. Report total intake of brackish water (as defined) regardless of source.

ITEM 2 — Self-explanatory

ITEM 3 — Water recirculation and reuse.

Report the total quantity of water which would have been needed if no water was recirculated or reused. For example, if 100 million gallons of intake water

were used twice for cooling purposes, and then the same water was again reused for washing products or materials, the total water required figure would be 300 million gallons (less consumption and evaporation loss).

ITEM 4 — Water discharged.

Include all water brought to ultimate discharge point for your establishment. Do not include water held in your ponds, lagoons, or basins, for reuse or treatment, until actually discharged. Do not report water discharged by evaporation.

A and B — (Self-explanatory).

C. Ground — Include seepage into ground from your holding ponds, lagoons, etc. (Note: If water is transferred to an agricultural establishment for spray irrigation, report such quantity in 4D).

D. Transferred to other users — Include transfers after your own use, to another establishment of either your company or another company.

ITEM 5 — Water treated.

Report the total quantity of water treated for control or biological growth, removal of suspended or dissolved solids, for corrosion control, or for any other purpose by simple or complex methods. From 5A, exclude water intake treated only by chlorination. In 5C, include water treated for discharge by chlorination as well as by other methods. In each section of item 5(A, B, and C), check all applicable methods of treatment.

Remarks:

HAMILTON PAPER CO
MICHIGAN DIVISION
111 HILL ST
PLAINWELL

000 HIGH

YOUR FILE COPY

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INSTRUCTIONS

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Remarks:

Name of person to contact regarding this report Weyerhaeuser Company, Paper Div.	Address (Number and street name, city, state, zip code) Plainwell, Michigan 49080	Telephone number
Signature of authorized person <i>[Signature]</i>		Date June 12, 1965
Title Manager		

Please continue on page 2

MATERIALS PREP SECTION

- 1 Clay Tank Pump Seals
- 2 #4 Air Cooling
- 3 Hose at Kady Mill
- 1-3 Go into Power Plant Sewer

WATER SECTION

- 1 Sewer Flush Line
 - 2 Reel Cooling Water
 - 3-5 Moyno Pumps
 - 6-7 Wash Tank Drains
 - 8 Water Tank OverFlow
- There are Six Hoses, only one was active!